

ABSTRACT:

The system comprises a display device having a pattern of pixels associated with color filters (5B, 5G, 5R) and a backlight system for illuminating the display device, which backlight system comprises a light-emitting panel (11) and a light source (16) associated with the light-emitting panel (11). The light source (16) comprises a plurality of light-emitting diodes (LEDs) of at least three different colors, the LEDs being associated with the color filters (5B, 5G, 5R). Preferably, the spectral emission of each of the LEDs substantially matches the transmission spectrum of the color filters (5B, 5G, 5R). Preferably, the bandwidth (FWHM = full width at half maximum) of the LEDs ranges from $10 \leq \text{FWHM} \leq 50$ nm. Preferably, the intensity of the light emitted by the LEDs varies with the light level of the image to be displayed by the display device. Preferably, the intensity of the light emitted by the backlight system is controllable on a frame-to-frame basis and, preferably, for each color. Preferably, the LEDs comprise a plurality of red, green, blue (and amber) LEDs, each having a luminous flux of at least 5 lumen. Due to the comparatively small bandwidth of the LEDs, much larger color spaces can be obtained using existing color filter technology.

Fig. 1B